Listing of the Claims:

The following is a complete listing of all the claims in the application, with an indication of the status of each:

1. (Currently amended) A method for detecting a dye bolus injected into the body of a living being, comprising the steps of:

injecting a fluorescent dye bolus into the body;

~~by~~ irradiating an optical excitation radiation into a predetermined region of the body ~~(4)~~ the excitation radiation being chosen so as to excite a fluorescence radiation of the fluorescent dye; and

detecting the fluorescence ~~a response~~ radiation occurring on the surface of the body,

wherein

the time between the irradiation of said optical excitation radiation and the occurrence of the fluorescence radiation caused by the excitation radiation is measured so as to determine the flight time of fluorescent photons through a tissue between a location of the bolus and the surface of the body

~~characterized in that a fluorescent dye is injected, an optical excitation radiation is irradiated into the body, and a temporal relation between a fluorescent radiation, which is triggered by the excitation radiation, and the excitation radiation is measured~~.

2. (Currently amended) The method as claimed in claim 1, wherein ~~characterized in that~~ the excitation radiation is emitted as a short pulse with a pulse width in the picosecond range.

3. (Currently amended) The method as claimed in claim 2 wherein the time course of the fluorescence ~~1, characterized in that a time profile of the fluorescent radiation triggered by the excitation~~ radiation is determined with nanosecond or picosecond time resolution.

4. (Currently amended) The method as claimed in claim 1, wherein ~~characterized in that, for detection of the fluorescent radiation,~~ the frequency of the excitation

radiation is blocked off by filtering for the detection of the fluorescence radiation.

5. (Currently amended) The method as claimed in claim 1, wherein ~~characterized in that a detection of the reflected excitation radiation is carried out~~ simultaneously and in parallel to the detection of the fluorescence radiation the excitation radiation diffusely reflected from the body is detected.

6. (Currently amended) The method as claimed in claim 1 wherein ~~5, characterized in that~~ the detection of the reflected excitation radiation is likewise carried out with time resolution.

7. (Currently amended) The method as claimed in claim 1, wherein ~~characterized in that~~ the detected fluorescence ~~fluorescent~~ radiation is evaluated by assessing the distribution of the measured time of flight of photons ~~temporal relation~~.

8. (Currently amended) The method as claimed in claim 7, ~~characterized in that a rise in the distribution~~ wherein an increase of the mean flight time of the fluorescent light is used as an indicator for the start of the detected dye bolus.

9. (Currently amended) The method as claimed in claim 1, wherein the region ~~characterized in that the excitation radiation is~~ irradiated by said excitation radiation is ~~into the body (4)~~ at the head in order to examine the brain.

10. (Currently amended) The method as claimed in claim 1, wherein the region ~~characterized in that the excitation radiation is~~ irradiated by said excitation radiation is ~~into the body (4) in~~ the area of the lungs.

11. (Currently amended) A device for detecting a fluorescent dye bolus injected into the body ~~(4)~~ of a living being, comprising:

~~with~~ an optical radiation source ~~(1)~~ for irradiating an excitation ~~optical~~ radiation into the body ~~(4)~~, said excitation radiation being chosen so as to excite a fluorescence radiation of the fluorescent dye;

~~and with~~ a detection arrangement ~~(6-16)~~ for detecting a fluorescence

~~response~~ radiation of the fluorescent dye; and

a measurement device for detecting a time difference between a time of irradiation of said excitation radiation and a time of detection of said fluorescence radiation

~~emanating from the body (4), characterized in that the optical radiation source (1) is designed to emit an excitation radiation with a first frequency, and the detection arrangement is designed to detect a response radiation with a second frequency different than the first frequency and to determine a temporal relation between the emitted excitation radiation and at least part of the detected response radiation~~.

12. (Currently amended) The device as claimed in claim 11, wherein ~~characterized in that~~ the optical radiation source emits excitation pulses with the pulse within the picosecond range ~~(1) operates in pulsed mode~~.

13. (Currently amended) The device as claimed in claim 11, wherein ~~characterized in that~~ the detection arrangement ~~(6-14)~~ is designed to detect the time course of fluorescence radiation with nanosecond or picosecond time resolution ~~a time profile of the fluorescent radiation triggered by a pulse of the excitation radiation~~.

14. (Currently amended) The device as claimed in claim 11, wherein ~~characterized in that~~ the detection arrangement comprises ~~(6-14) has~~ an optical filter ~~(7)~~ for blocking off the excitation radiation.

15. (Currently amended) The device as claimed in claim 11, wherein ~~characterized in that~~ the detection arrangement ~~(6-14) has~~ comprises an additional detector branch ~~(6", 8, 10)~~ for detection of ~~reflected~~ excitation radiation diffusely reflected by the body in said region.

16. (Canceled).

17. (New) Method for detecting a dye bolus within the body of a living being, comprising the steps of:

injecting a fluorescent dye bolus into the body;

irradiating an optical excitation radiation into a predetermined region of the body, the excitation radiation being chosen so as to excite a fluorescence radiation of the fluorescent dye;

detecting the fluorescence radiation on the surface of the body, wherein a high frequency modulated light is used as the excitation radiation and the modulation depth and the phase of the fluorescence radiation are determined.